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DEPARTMENT OF BIOLOGICAL SYSTEMS ENGINEERING

ISSUE 8 Vol. 1

NEWSLETTER OF ACHIEVEMENT

APRIL 2012

Biological Systems Engineering Hall of Fame

Two outstanding individuals welcomed to the 2011 Hall of Fame

Ruby Loper

The daughter of Albert and Martha Loper, Ruby M. was born on January 12, 1901, near Douglas. Sometime between 1910 and 1920 her family moved to Lincoln, where Ruby graduated from Lincoln High School. At the University of Nebraska, she was a member of Delta Zeta Sorority and studied Architectural Engineering from 1920 through 1922. Ruby began working as a draftsman in the Department of Agricultural Engineering in 1923, and from 1924 to 1933 was the Department's Chief Draftsman. She became an Assistant Extension Engineer in the Department in 1934, a position she held until 1946.

It wasn't until August of 1946 that Ruby received her B.S. in Architectural Engineering. Contrary to some reports, she was not the first, but was the third woman to graduate with an engineering degree at the University of Nebraska. She joined the Agricultural Engineering faculty in 1946 at Cornell University in Ithaca, New York, where she retired and continued to live until she passed away on January 17, 1990.

Ruby was the first female faculty member in Agricultural Engineering at Cornell and Nebraska. She authored numerous extension articles and was a charter member and director of the American Association of Housing Educators.

(continued page 3)



Regency Portraits © 2011

Dirk Petersen

Dirk began his education in a one-room school near Wisner, and graduated from UNL with High Distinction in Agricultural Engineering in 1976. His record as a student at UNL included serving as President of the Student Engineering Executive Board, election to Tau Beta Pi, and winner of the National Agricultural Engineering Student Paper Award.

Following graduation, Dirk worked as a design engineer and as test engineer for Deere and Co. In 1979 he joined a small company in Norfolk, called Vulcraft, a subsidiary of Nucor, which manufactures steel girders, joists, and decking. He first served as sales engineer, then was promoted to Engineering Manager of the Vulcraft branch in St. Joseph, Indiana, in 1987, and was in charge of design, drafting, and quality control of joists and girders. In 1995 he was promoted to Sales Manager, and was responsible for estimating, quoting, sales, and customer service.

In 2002, Dirk was promoted to General Manager of Nucor Building Systems in Waterloo, IN, where he was responsible for all aspects of manufacturing and marketing of engineered metal buildings. The company was the second largest manufacturer of metal buildings in the U.S. with sales of over \$80 million. *(continued page 3)*



UNIVERSITY OF NEBRASKA-LINCOLN

BIOLOGICAL SYSTEMS ENGINEERING DEPARTMENT

From the Department Head



Milford Hanna

Planning appears to be the name of the game around here. You already heard about our successful ABET undergraduate engineering program review/accreditation of early last fall. Now, everyone is involved in developing an agenda to address our Chancellor's growth goals. On the teaching side, we will

have no problems. The successes of our students and the great jobs our faculty and staff do in recruiting have resulted in continuous growth. And, the quality of our students continues to go up. This planning will lead us into our NIFA (Academic Program) Review scheduled for September.

I have good news on faculty hires. Joe Luck will arrive here this month. He will receive his Ph.D. from the University of Kentucky and will shore up our position in the precision agriculture arena. Derek Heeren will arrive in August. He is finishing his Ph.D. at Oklahoma State University. He will enhance our irrigation engineering efforts. We are hoping to fill the livestock bioenvironmental engineer position soon. And then, there is the Department Head position. The position has been advertised and the applicant pool review will begin in April.

Even though we have had a mild winter here in Lincoln, I think everyone is looking forward to spring and everything it brings including new life and new projects, which are kind of one-in-the-same in our business. I wish you all the best and remind you the door is open when your travels bring you to Lincoln.

Biological Systems Engineering Department Newsletter

Milford Hanna . . . Editor
Gail Ogden Editorial Coordinator
Sheila Smith Graphics and Design
Contributors David Billesbach, John Hay, Drew Landgraf,
Rebecca Dornbierer, Dennis Schulte, Jeff Woldstad

Any mention of trade names in this publication does not imply endorsement by the Biological Systems Engineering Department.

Biological Systems Engineering Department Newsletter

Archives

Past issues are on the web at bse.unl.edu/news.shtml

Climate Research in Alaska



Research Professor Dave Billesbach stands by the instrument tower that he deployed in September, 2011, near Barrow, Alaska. The instruments measure carbon dioxide and methane emitted from the melting tundra.

This Department of Energy project aims to quantify climatic feedback of global climate change in this fragile ecosystem.

Loper (continued from front page)

Ruby served as national chair of commercial and farm housing standards, and as the national design chair of the committee on electric light in the farm home. She was also a member of the national committee on farm fire prevention and protection. While at Nebraska, her publications included *Farm Buildings for Nebraska*, *Space Requirements and Storage Capacities for Nebraska Farm Structures*, *Summer Shelter for Poultry*, and *Adequate Wiring for the Farm Home*. In 1937 Ruby authored *Farm Houses That Farm Families Want* in *Agricultural Engineering*, the forerunner of the *Transactions of the ASABE*.

While in Lincoln, Ruby lived at 3601 Apple, near the East Campus, where her hobby was gardening. She owned a farm near Douglas for much of her adult life and identified with the problems of farm ownership and management. A part of her early Nebraska extension career involved preventing soil erosion. She surveyed farm land for the implementation of the then-new practice of installing terraces and contours. Due to the absence of male farm labor during World War II, Ruby participated in extension programs that taught women how to operate farm tractors.

Ruby M. Loper truly pioneered the involvement of women in the profession of Engineering.

Petersen (continued from front page)

Dirk moved back to Norfolk, NE, as Vice-President and General Manager of Vulcraft and Nucor Cold Finish in 2004. Dirk oversaw all aspects of research and manufacturing for the company's steel products and added a Nucor Detailing Center. He became an officer in Nucor Corporation with corporate responsibilities. During that time, sales grew to over \$300 million and involved over 500 employees.

Currently, Dirk serves as Vice-President and General Manager of Nucor Steel in Norfolk. The company produces over a million tons of steel per year from melted scrap, with sales exceeding \$700 million. Throughout his career he has held safety as a primary responsibility and is proud that Nucor has received the Presidential Safety Award the past two years.

Dirk still maintains roots in agriculture. He farms and owns the Holland Feedlot near Wisner, feeding over 50,000 beef cattle per year.

Dirk is, without doubt, a credit to the profession of Agricultural Engineering and to the Biological Systems Engineering Department.

Faculty profile



Jeff Woldstad joined the faculty in August 2011. He specializes in the areas of whole-body biomechanics and occupational safety and health. He was previously the Department Chair of the Industrial and Management Systems Engineering (IMSE) Department at the University of Nebraska-Lincoln, until that program was ended due to budget constraints.

He received a B.S. degree in Mathematics and Psychology from the University of Puget Sound in Tacoma, WA, in 1983, a M.S. degree in Industrial and Operations Engineering from the University of Michigan in Ann

Arbor, MI, in 1984, and a Ph.D. in Industrial and Operations Engineering and Psychology in 1989, also from the University of Michigan. Jeff has served on the faculty in Industrial Engineering at Texas Tech University, Oregon State University, and Virginia Polytechnic and State University. He has spent the last ten years as an academic administrator serving as the Associate Dean for Undergraduate Studies at Texas Tech University, the Senior Associate Dean at Texas Tech, and a Department Chair in the College of Engineering at UNL. He is a registered professional engineer in Texas.

His research has included projects for governmental sources such as the National Institute for Occupational Safety and Health (NIOSH), NIH, NASA, NSF, and for private industry such as Boeing, the Association of American Railroads, and Koch Industries. He worked as a private consultant doing both engineering design and as an expert witness in legal cases. At the present time, he is involved in constructing and reviewing the Fundamentals of Engineering exam and serves as Associate Editor for the technical journal *IIE Transactions in Human Factors and Ergonomics*. In addition, he was recently appointed by the U.S. Secretary of Health and Human Services as a member of the NIOSH Safety and Occupational Health Study Section.

Jeff and his wife, Carol, have two sons, one who attends the University of Texas and one who attends the University of West Virginia.

Jeff looks forward to returning to a more traditional teaching and research role. However, he noted, it may take some time to do this as he will be teaching and advising the remaining IMSE students for the next 3 years as they complete their degrees at UNL.

The Biological Systems Advisory Board *gives input to the faculty for the undergraduate programs, research, and extension. The board also provides input for the ABET accreditation. All volunteers, the members are invited to the board by the department head, and meet once a year. We will highlight more of these outstanding individuals in upcoming issues.*

Kelly Brunkhorst

Kelly currently serves as the Director of Research with the Nebraska Corn Board and has been involved with the BSE Advisory Committee for several years. He graduated from the department with a Mechanized Systems Management/Business degree in 1995. The role that he sees as important for the advisory committee is to be a sounding board and provide input on opportunities and challenges that the department is discussing. Additionally, the advisory committee is able to provide input on changes that are happening within the various industries and how the department can be sure that graduates have the education and skills needed to seamlessly transition from college to a professional career. Personally and professionally, Kelly writes, serving on the Advisory Board has been a rewarding experience.



Matt Helmers

An Associate Professor in the Department of Agricultural and Biosystems Engineering at Iowa State University, Matt feels he can provide input on course offerings and how those offerings are meeting the needs of students as they prepare to transition to professionals. Matt's perspective as a former student (Ph.D., AGEN) and now faculty member, provides input on the balance for research, teaching, and extension. He admires how the BSE program has maintained high-quality education at a time when demands on faculty members are ever increasing.



Matt is currently working on water quality and water quantity issues associated with agriculture. His specific focus is on evaluating the performance of land management on drainage water quality and impacts of subsurface drainage design and management on water flow. He has continued work on performance of vegetative buffer systems, and routinely works with farmers and state agency personnel on the implementation of practices that have the potential to reduce sediment and nutrient loading to downstream water bodies.

Stacy Modelski Sall

Stacy's job title at the USDA-Natural Resources Conservation Service is Design Engineer. She has been working in this capacity for the last 11 years and has recently taken on a new set of responsibilities at work: she is responsible for managing workload with design staff, mainly dealing with the watershed and watershed rehabilitation programs (Public Law 83-566, the Watershed Protection and Flood Prevention Act of 1954, as amended and Watershed Rehabilitation Amendments of 2000). She sees her role on the BSE advisory board as continuing her relationship with the BSE department as an alumnus. Stacy enjoys participating in department functions, including the advisory board and the annual E-Day event, as a company representative. She brings ideas and opinions to the BSE Advisory Board as an employee of the federal government.



Dale Schlautman

Dale believes that the Department does an outstanding job creating a positive environment for student development, and is honored to serve on the BSE Advisory Board to assist it with continuing to be a leader in this area. Dale has also been a consistent presence during E-day events representing EA Engineering each December.

Growing up on farm near Howells in northeast Nebraska, Dale wanted to attend UNL to learn about engineering. He liked both agricultural engineering and civil engineering and finally selected agricultural engineering because of a \$100 scholarship sponsored by the FFA. He has always been grateful that the little scholarship pointed him in the right direction, and he graduated with a B.S. in Agricultural Engineering in 1994, followed by an M.S. in Agricultural and Biological Systems Engineering in 2001. As an undergraduate, Dale had the opportunity to work with Dr. Derrel Martin and Dr. Dean Eisenhauer as a research assistant on the Management Systems Evaluation Area (MSEA) project near Shelton. Both faculty members had a tremendous positive impact on his formation as an engineer. In 1992, Dale began working part-time as an intern for EA Engineering, Science, and Technology, Inc. (EA) and is still there over 20 years later.



Dale has been the Branch Manager for Lincoln Operations for the past 10 years, and is licensed in eight states. The variety of projects at EA, including surface water quality, livestock waste control facilities, munitions investigations at Air Force bases, and river restoration near Mt. St. Helens, has kept things exciting. Groundwater-related projects are still his favorite and he is currently working on a groundwater recharge feasibility project along the central Platte River. Easily the main reason he has stayed at EA so long is due his professional colleagues. Lee Gustafson, in particular, has been his mentor and has had an immeasurable professional influence. Dale and his wife, Susan, are actively involved in North American Martyrs Parish and School and greatly enjoy camping trips with their six children.

Coming and Going

Dave Morgan retired from the Nebraska Tractor Test Laboratory (NTTL) in February. He first worked in the Lab as a student from 1965 to the fall of 1969. He entered the department as a mechanized systems management student, changed majors, and graduated in agricultural engineering. He then served in the Air Force for 9 years, seeing a lot of Asia: Vietnam, the Philippines, S. Korea, Hawaii, and then stateside in Florida and Washington. He was a weapons controller, working in ground radar. At the end of his service, Dave achieved the rank of Captain. Dave met his wife, Karen, in Hawaii, and calls her the smart one in the family. They have been married for 35 years.

Two guiding principles in his life were learned in the military: leadership and responsibility. After the service and some time in California, Dave returned to Nebraska in 1980 and joined the NTTL, under the leadership of Lou Leviticus. Dave trained many students at the Lab and retired as Assistant Director. In addition to his work at the university, Dave trained and became an EMT in 1981, taught CPR, and has also been a paramedic since 1993. He volunteers with the Red Cross, which he began while living in Hawaii, and has worked at Husker football games for thirty years. Now that the time clock no longer runs his life, Dave plans to spend his time travelling, working on home renovation projects, and continuing to serve as a paid and volunteer EMT. He still teaches CPR and Emergency Medical Services classes. Later.

Ray Kubert retired from the Nebraska Tractor Test Laboratory (NTTL) in February. Ray was overheard to say that in retirement he was going to "sit on the deck and watch the ducks." Ray also retired from the Nebraska Air National Guard as a Chief Master Sergeant, the highest enlisted grade in the military, with over 30 years active and guard service. His daughter, Nicole, is a student at UNO. Well done.



Julie Thomson is dividing her time between the Tractor Test Lab and the Power and Machinery Bay as Office Associate. She is working at the receptionist desk at NTTL, submitting reports, and keeping track of student training. And at her desk in Chase Hall, she assists several professors and is secretary to the Nebraska Tractor Test Board and the BSE Awards Committee.



Evan Curtis is now Student Services Coordinator for the department. His many and varied duties range from recruiting new students, to assessment of academic programs in the department.



Sohan Birla, formerly a postdoc, is now Research Assistant Professor in the food and bioprocess engineering area. He works with Jeyam Subbiah on computer simulation of microwave heating for non-ready-to-eat meals.

Stacey Hawkey, Extension Engineer and the coordinator of the P3 program, left to pursue other interests as the P3 program goes through a period of transition and re-visioning. She is still on board as a consultant for an EPA project being completed this year, summarizing some of the past P3 work with written guidelines for future student interns and/or young engineers within companies to use for minimizing waste and conserving resources.

Chris Henry is now Water Management Engineer at the Rice Research and Extension Center in Stuttgart, Arkansas. He is developing cost-effective water management practices for rice farmers. Rice grown in Arkansas makes up over 46 percent of total rice production in the U.S.



Monte Shomaker, Office Associate, accepted a position in the Dean's Office at the College of Business Administration, and is working closely with two of the Associate Deans.

In Memoriam

Raymond H. Tharnish passed away on Friday, February 3, 2012, at the age of 92. The oldest of 14 children, Ray was born in Creighton, and is survived by 11 siblings, four children, three step-children, and numerous relatives. An Air Force veteran of W.W. II, he was a supervisor for Western Electric for 15 years before joining the Agricultural Engineering Department as a research technician where he worked for 15 years.



Courtesy photo

Developing Ag Partnership with Brazil

In December, IANR Vice Chancellor **Ronnie Green** led a UNL delegation to engage with colleagues at the University of Sao Paulo—ESALQ in Brazil, which is about two hours west of San Paulo. Located in the city of Piracicaba, USP—ESALQ is regarded by many as the leading agricultural program in South America.

The groundwork for the December meeting was laid in August when NU President J.B. Milliken, Vice Provost for Global Engagement, Tom Farrell, and Ronnie Green were in Brazil and met with a variety of potential partners. In December, the team of George Graef (Agronomy and Horticulture), **Adam Liska** (Biological Systems Engineering and Agronomy and Horticulture), **Jack Schinstock** (Mechanized Systems Management), **Derrel Martin** (Biological Systems Engineering), Rolando Flores (Food Science and Technology), Marc Andreini (Daugherty Water for Food Institute), Weber Amaral (faculty member from USP-ESALQ, currently a Fulbright Food Security Scholar at UNL), Tom Farrell, and Ronnie Green traveled to Piracicaba. They worked with the faculty and administration to identify key focal areas where collaborations in research, and graduate and undergraduate education can take place. It was clear to the UNL team that USP-ESALQ holds the potential to be an important and major strategic partner in the areas of water for food, bioenergy, food science, and plant and animal biosciences.

The workshop was tremendously successful, laying a foundation for a major agreement and partnership in the above areas. It culminated in the signing of a letter of intent between the two universities to develop and implement a major new agreement.



The 2011 UNL Extension Excellence in Team Programming Award (Team Leader) was presented to **Suat Irmak** on November 9, 2011, in Kearney. This award recognizes the importance of interdisciplinary team efforts in achieving the goals of the UNL Extension. Criteria highlighted included problem identification, team strategy, grant success, productivity, and the impact and the output of the the team in relation to inputs.

Greg Bashford gave a presentation at the Engineering Neuroscience and Health seminar at the University of Southern California in February. The title of his talk was *Ultrasound in Tendons, Blood, and the Brain: Uncovering Clinical Information with Spectral Analysis*.

The Nebraska Board of Engineers and Architects newsletter noted that **Austin Lammers** (Nebraska Tractor Test Lab) and **Sohan Birla** (Research Assistant Professor) both passed the licensure exam to become Professional Engineers. **Alumnus Josh Dodson**, with the Nebraska Department of Environmental Quality, has also achieved this designation.

Sarah Plautz, Pannier lab manager, and her husband, Cory, welcomed the birth of their son, Bennett James, in September. He joins his big sister, Alivia. **Bill Rathje** (South Central Ag Lab, Clay Center) and his wife, Megan, welcomed a second daughter, Macy Lee, in November. Congratulations to these families.

The UNL Teaching Council and UNL Parents Association honored faculty and staff at an annual award recognition ceremony on February 3. The awards provide positive feedback to campus faculty and staff about the work they do with students. The number in parentheses indicates the number of years a recipient has received the award. **Dean Eisenhauer** (6), **David Jones** (8), **Jack Schinstock** (16), and first time **Jeremy Steele**.

ASABE AWARDS

The 2011 Annual International meeting for members of ASABE was held in Louisville, Kentucky. The following members of our department were recognized.

Presidential Citation

Curt Weller and Ernest W. Tollner were recognized for their dedication to the profession as demonstrated by their leadership in authoring and validating questions for the Fundamentals of Engineering examination.

Educational Aids Blue Ribbon Awards, Electronic and Web-based delivery

G. Johnson, S. Aschmann, G. Zwicke, S. O'Neill, R. Vining, S. Detter, B. Littleton, S. Sriparameswaran, **R. Stowell**, **J. Heemstra**, and C. Olson. (USDA-NRCS Air Quality and Atmospheric-Change Team, Portland, Oregon), on-line course

S. Irmak, J. Rees, G. Zoubek, B. Van DeWalle. Nebraska Agricultural Water Management Demonstration Network (NAWMDN) Web site

Superior Paper Award

S. Irmak, J. Rees, G. Zoubek, B. Van DeWalle, **W. Rathje**, R. Debuhr, D. Leininger, D. Siekman, A.J. Schneider, A. Christiansen. *Nebraska Agricultural Water Management Demonstration Network (NAWMDN): Integrating Research and Extension/Outreach*, Applied Engineering in Agriculture, Vol. 26, No. 4.

K.K. Barnes Student Paper Awards, First Place:

Ms. Edel M. Victor, *Radio Frequency Assisted Heat Treatment of Egg White Powder*

Blowin' in the Wind

John Hay, Extension Educator in renewable energy, designed and wrote the curriculum for the 2011 4-H National Science Experiment for the National 4-H Council. "We created this year's experiment to help young people understand the important links between energy, the environment, and their community," said John. He worked with Brad Barker, Nebraska 4-H, and a private company, KidWind, to develop the project. This was the fourth year of the national 4-H science experiment which is conducted nationwide, usually during National 4-H week or as part of National Youth Science Day held each year in October. This year's experiment, titled *Wired for Wind*, was picked up around the world. It taught youth about renewable energy, engineering design, experimental design, and physics as they designed, built, and tested wind turbine blades. John summed up the project by saying it's "a little bit about wind turbines, a little bit about physics and a little bit about the socio-economic impacts of where we locate turbines." In Nebraska, the experiment reached nearly 2,000 kids in more than 40 locations. Additional sponsors for this event included Toyota, Motorola, BAE Systems, Fleischmann's Yeast, Wal-Mart, and the National Science Teachers Association.

The map shows experiment locations across the country.



Following the Harvest

The hours are long, the work is rough, and the experience comes fast: Drew Landgraf worked as a member of a custom harvest crew for seven months.



Courtesy photo

Drew was hired for a position as a grain cart operator in Texas, where crews started cutting wheat on May 11. Due to the drought, the crew didn't need a grain cart until mid June; they kept up by dumping on-the-go with semis. Instead of driving a tractor and grain cart as initially planned, he got experience driving a combine. Once the grain cart arrived, Drew switched, and drove the combine only as needed. By fall harvest, four crew members had left, so during soybean harvest Drew rotated between operating the combine and grain cart. During corn harvest, Drew rarely drove the combine, though he frequently drove a semi, and occasionally ran the grain cart when they could keep up, as he still had the most cart experience after the boss. The boss estimated that they cut around a half million bushels of corn by the end of the season.

As a crew member, Drew had the opportunity to drive brand new equipment to its limit for seven months. All service to the equipment and semis is done by the crew, unless there is a dedicated team mechanic in the crew. There are industry requirements for operating this kind of equipment; the minimum age to drive a semi is 21, and a Commercial Driver Licence for double and triple axles is required. Drew quickly learned that he had to be careful because these are massive machines and can cause a lot of damage, and even catch on fire. Although he was fortunate not to have that experience, he heard of others who did. The combine heads are so wide, and they didn't always fit where the driver thought they would. There were two instances of people not paying attention and dropping the combine in a ditch; the combines were not damaged but they sure made a lot of noise.

Drew enjoys working, and his experience on the home vegetable farm gave him a good idea of what it would take to succeed. He thinks most people do not realize how much work is involved or what the hours are—sometimes really long days into nights. While the pay wasn't great, the experience was invaluable. He was able to buy a car with his earnings and head east for a job with Case New Holland (CNH). He wrote, "I would recommend this job for anyone looking to go into combine design, testing, etc. It is an excellent experience—granted you find a good crew. It could just be me, but I had a lot of fun on this job."

"I would recommend this job for anyone looking to go into combine design, testing, etc."

Educational Objectives

As part of our ABET responsibility fulfillment, we publish the educational objectives for our two engineering majors.

Agricultural Engineering

A few years after graduation, AGEN graduates (whether they are involved in machine design, product and performance testing, soil and water resources, or other professional endeavors such as business or law) will be:

1. applying their unique educational backgrounds in agricultural engineering by providing appropriate solutions to problems and adding value to the research, development, and design processes encountered in a variety of work environments;
2. considering systems as a whole when solving problems, looking beyond components and subsystems individually;
3. confidently using the necessary elements of mathematics, statistics, physical science, engineering, computer-based measurement and analysis tools and current literature in solving problems and providing design solutions;
4. successfully integrating their technical knowledge with organization, communication, and interpersonal skills, leading and working effectively in teams, and understanding cultural diversity and social and political forces that impact engineering decisions, as well as having the capability of competing in an international atmosphere;
5. responsibly addressing issues of health and safety, ethics, and environmental impacts of engineering decisions; and
6. continuing their personal growth, professional development, and professional and community service, through various opportunities provided by institutions, professional organizations, and other venues.

Biological Systems Engineering

A few years after graduation, BSEN alumni will share the attribute of improving the organization for which they work, and the community and country in which they live. They will do this whether they are involved in biomedical engineering, environmental and water resources engineering, food or bioproducts engineering, or other professional endeavors such as business, law, or medicine. In doing so, they will:

1. provide innovative and effective solutions to problems in a variety of work environments through the use of their unique background in biological systems engineering and the biological sciences;
2. look beyond components in isolation, thereby providing holistic solutions to complex issues involving (for example) interactions at the ecosystem, organism, organ, cellular, or subcellular level;
3. think logically using appropriate elements of mathematics, science, and engineering to develop, manage, and interpret data, to correctly interpret new research findings, and to design new systems for the benefit of society;
4. successfully integrate technical knowledge with organizational, communication, and interpersonal skills to lead and work effectively in teams, and to articulate the role of engineering decisions in the workplace, community, and world;
5. responsibly address issues such as health and safety, personal and professional ethics, cultural diversity, as well as the social, environmental, and global impacts of their work; and
6. continue their personal growth, professional development, and professional and community service through various opportunities provided by institutions, professional organizations, and other venues.

Problem Solving Experience Expands Skills

Teaching students how to solve problems by devising practical, efficient solutions is the task of a joint committee of Midwest educators and Ag*IDEA. Biological and agricultural engineering, and agricultural systems management faculty from Iowa State University, Kansas State University, North Dakota State University, South Dakota State University, University of Missouri, and the University of Nebraska have devised online undergraduate experiences for students. **Deepak Keshwani** said, "This program provides UNL students an opportunity to broaden their knowledge base in the area of agricultural mechanization by taking courses taught by experts at other universities."

Learn more on the
Web site:
www.agidea.org.

Alum News

Marvin Bishop (1959, B.S., AGEN, 1961, M.S., AGEN) is now retired and lives in Hermosa, SD. Marvin was an engineering instructor at the USAF Academy. He also worked part-time as a land surveyor, following original General Land Survey of the area in the 1980's, and recreating the work done at that time.

Dennis Tomsicek (1991, B.S., MSYM) is a Senior Agricultural Technician at the Kansas State Southwest research and Extension Center in Garden City, KS. He has been with the extension service since 1992, and provides technical support for the irrigation/water resources research program. Dennis has been a member of ASABE for 20 years. He is also active in the Fraternal Order of Eagles, and is currently serving as the secretary. Dennis grew up near Prague, NE.

Ethan Rojhani (1999, B.S., BSEN) works as a consultant for Management Consulting, PWC, in Denver, CO.

Suzanne Ebert (1999, B.S., BSEN) lives in Kingston, Jamaica, and works with the U.S. Agency for International Development as an environment officer.

Michael Henry (2000, B.S., BSEN) is an Environmental Manager with Gavilon in Omaha.

Joel Stenberg (2005, B.S., BSEN) is a project engineer with Aquaterra Environmental Solutions in Omaha.

Garrett Pommeranz (2005, B.S., AGEN) is a Design Engineer for Caterpillar in Brooklyn Park, MN. He works in the Global Paving Division.

Troy Ingram (2006, M.S., MSYM) is in his 5th year as a hydraulic engineer in the Flood Risk and Floodplain Management section of the Omaha District Corps of Engineers. He and his wife, Cory, also farm 160 acres of corn and soybeans in Greeley county. This past August, they welcomed a baby girl, Reese Alexandra.

Adam Flaugh (2008, B.S., MSYM; 2011, M.S., AGEN) will work as a research assistant as he begins his Ph.D. program at Purdue University.

Brian Watt (2009, B.S., BSEN) works in the department as a graduate research assistant while he studies for his masters under the supervision of Greg Bashford. Brian is also a certified Master Photographer, and owns Brian Watt Photography in Lincoln.

Bobby Brauer (2010, B.S., BSEN) is on his way up in his career with Monsanto. Currently in Chesterfield, MO, he is working as the International Pipeline Coordinator, coordinating logistics and planning for research and development of traited corn products in South America, Asia Pacific, and Africa.

Sam Schmidt (2010, B.S., MSYM) lives in Oakland, NE, and works as an Area Crop Specialist for Servi-Tech, Inc.

Andrew Landgraf (2011, B.S., AGEN) is a Field Test Engineer, Electrical, for CNH America, and is living in Lancaster, PA. (See his story of working on a custom harvest crew, page 7.)

Marcus Kuhl (2011, B.S., AGEN) is a Drivetrain Engineer with John Deere in Waterloo, IA.

What's New?
Update your profile at:
bse.unl.edu
Select Alumni Update under
Department heading.
Inclusion in the newsletter is
optional.

**2012
Spring Banquet
Sign up by
April 6**

Name(s)		
Address		
City	State	Zip
Phone	E-mail	
No. attending	@ \$16/person =	Enclosed
No. attending	@ \$12/student =	Enclosed

Plan now to attend
Return reservation by **April 6** to:
BSE Spring Banquet
Attn: Eileen Curtis
Biological Systems Engineering Department
200 CHA University of Nebraska—Lincoln
Lincoln, Nebraska 68583-0726
Phone: 402-472-3905
ecurtis1@unl.edu

Student News

A recent graduate and new BSEN graduate student, **Jessica Mills**, from Houston, TX, received the Division 1A Faculty Academic Representative Excellence Award from the NCAA. She is a former Lady Husker Soccer player.



Courtesy photo

Suzanne Higgins, a senior BSEN major from Grand Island, is a member of the Nebraska Women's Track team. She runs the 400m to 1,500m races, with her specialty, the 800m. Suzanne was on the first-team Academic All-Big 12 (2010), Big 12 Commissioner's Honor Roll, Spring (2009, 2010, 2011) and Fall (2008, 2009, 2010). The Husker women won the 2012 Big 10 Indoor Track and Field championship in February at the Devaney Center.

Luke Lingenfelter, joined the football team as a walk-on player from Plainview. A four-time Big 12 Commissioner's Fall Academic Honor Roll (2007, 2008, 2009, 2010) and four-time Big 12 Commissioner's Spring Academic Honor Roll (2008, 2009, 2010, 2011), Luke played as an offensive lineman and graduated with a B.S. in BSEN in December.

On February 3, the ASABE club toured the USDA Meat and Animal Research Center, in Clay Center, and T-L Irrigation in Hastings. Ten members, ranging from freshmen to a Ph.D. student, attended the day-long tour. Both stops provided excellent learning opportunities for the diverse group of agricultural engineering and biological systems engineering students. T-L Irrigation provided lunch and, as you can see from the picture, bags and hats!



Courtesy photo

Doug Grotrian, a freshman from Johnson majoring in mechanized systems management, was one of four students designated as a four-year Engler Scholar. The program identifies students who have an entrepreneurial drive and teaches them the skills necessary to succeed. Doug was active in 4-H and FBLA, served as president of his FFA chapter, and was a member of the National Honor Society in high school. He also placed first in the State FFA Ag mechanics competition and was a National Top 10 finalist in the Chevron Delo Tractor Restoration contest.

DECEMBER



Mechanized Systems Management students attended the CASNR graduate recognition.

From L. to R.: Dr. Jack Schinstock, Jerod Duffek, David Leinart, Jamie Kathol, Grant Melotz, and Dr. Deepak Keshwani.



Engineering students attended the graduate recognition hosted by the College of Engineering. From L. to R.: Ryan Freiberger, Dr. Milford Hanna, Elizabeth Thraikill.

GRADUATION

Agricultural Engineering

Marcus Kuhl, Kearney
(With Distinction)

Biological Systems Engineering

Ian Bargar, Lincoln
Kristen Cope, Willow Park, TX
James Dalton, Omaha
Ryan Freiberger, Lincoln
Stacey Joy, Vermillion, SD
(University Honors Program)
Luke Lingenfelter, Plainview
Catherine Sargus, Lincoln
(With Distinction)
Elizabeth Thraillkill, Seward
(With Distinction)
(University Honors Program)

Mechanized Systems Management

Jerod Duffek, McCool Junction
Jamie Kathol, Hartington
David Leinart, South Sioux City
Grant Melotz, Omaha
Kyle Orians, Omaha
Zachary Tietz, Bancroft

Honors Thesis

Stacey Joy
Construction and Implementation of Biosand Filters for Total Coliform and Turbidity Removal from Drinking Water in Madagascar

Elizabeth Thraillkill
Vibration Analysis of the StandOn Accessory for the Exmark Turf Tracer Walk-behind Lawn Mower to Determine Operator Comfort and Safety

Master of Science

Andrew Anderson, Lincoln
Environmental Engineering
Thesis title: *Hydrologic Evaluation of Established Rain Gardens in Lincoln, Nebraska, Using a Storm Runoff Simulator*

Adam Flaugh, Lincoln
Agricultural and Biological Systems Engineering
Thesis title: *Studies on Power Hop of a Nonlinear Agricultural Tractor Model*

Matthew Wold,
Thief River Falls, MN
Agricultural and Biological Systems Engineering
Thesis title: *The Economics and Logistics of the Dual Harvest of Grain and Biomass in a Single Pass*



Ph.D.

Koffi Djaman, Lomé, Togo
Dissertation title: *Crop Evapotranspiration, Crop Coefficients, Plant Growth and Yield Parameters, and Nutrient Uptake Dynamics of Maize (Zea mays L.) Under Full and Limited Irrigation*



Koffi Djaman and his advisor, Dr. Suat Irmak, prepare for the hooding ceremony.

THE DEAN'S LIST

Fall Semester 2011

AGEN

Kurtis Charling
Adam Emanuel*
Mark Hilderbrand*
Marcus Kuhl
Ross Lawrence
Caleb Lindhorst
David Lindquist
Shane Manning
Robert Olsen
Luke Prosser
Wesley Schaardt
Ian Schuster
Wyatt Stubbs
Joseph Timmons
Aaron Vancura

Eric Farris

Brendan Feehan
Michaela Fischer
Mikayla Freese
Ryan Freiberger
Emily Harrison
Haley Hatter
Suzanne Higgins
Charles Hinds
Bradley Hugenroth
Elizabeth Hungerford
Sara Hutcheson
Seely Kaufmann
Timothy Kinoshita
Ted Kocher
Monica Krause
Larissa Krenk*
Tyler Kruse
Olivia Lambdin
Rachel Lemke*
Luke Lingenfelter
Brenden Lopp
Nathaniel Mannebach
Ashley Mara
Aaron Matzke
Marissa McCormick
Linkai Mei
Jeremiah Meints
Keith Miller
Erik Moore
Rachel Morford*
Mallory Morton*
Cat Tuong Nguyen
Dianne Norris
Sheridan Nusz
Emily Olig
Jared Ostdiek
Keith Ozanne
Kailey Parr
Ian Parsley*
Nicholas Phillips

Alexander Pieper
Matthew Pirog
Quinton Reckmeyer
Daniel Reiff*
Nikolai Reitz
Rachel Remund*
Brian Richard
Justin Rosenbohm
Lukas Samuelson
Catherine Sargus
Rachael Schmidt
Ashley Schmidt
Alyssa Schrack
Nicole Schuster
Derek Shafer
Cole Sievers
Jacob Sison-Martinez*
Danielle Smith
Katelyn Stanley
Jacquelyn Stiles
Christopher Sullivan
David Szalewski*
Jason Thomas
Elizabeth Thraillkill*
Nhat Tran
Samantha Triba
Megan Tunink*
Max Twedt
Nicholas Vandenberg
Riley Vanek
Mitchell White
Lauren Wondra
James Yong*
Shelby Young

BSEN

John Bader*
Thomas Bainter
Bobbi Balogh
Dana Becker*
Stephanie Berger*
Jared Beyersdorf
Chase Blazek
Tyler Borczyk*
Tasneem Bouzid*
Bethany Brittenham
David Bunker
Brian Burris
Courtney Cahoy
Jacob Campbell
Erica Carder
Margaret Clay
Kathryn Conroy
Kristen Cope
Elizabeth Cowles
Zachary Duncan
Joseph Dougherty
Alexander Eggert
Aleck Erickson

Eric Farris
Brendan Feehan
Michaela Fischer
Mikayla Freese
Ryan Freiberger
Emily Harrison
Haley Hatter
Suzanne Higgins
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Samantha Triba
Megan Tunink*
Max Twedt
Nicholas Vandenberg
Riley Vanek
Mitchell White
Lauren Wondra
James Yong*
Shelby Young

MSYM

Anthony Klein
Douglas Grotian
Grant Melotz
Zachery Tietz

* indicates 4.0 gpa

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To arrange a gift, contact:

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abruntz@nufoundation.org

OR

Karen Moellering (COE, AGEN/BSEN)

402-458-1179

kmoellering@nufoundation.org

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Spring Banquet 2012

Annual Awards and Recognition Dinner

Alumni
Parents
Students
Faculty
Staff

Senior Design Project Exhibits
Awards & Accomplishments of
Students, Faculty, and Alumni
BSE 2012 Hall of Fame

Friday April 13, 2012

Nebraska East Union, Arbor Suite, 3rd Floor

5:30 PM – Student Design Exhibits

6:30 PM – Dinner

7:30 PM – Program

**More on
Page 9**

Make reservations by April 6 to:

BSE Spring Banquet, Atten: Eileen Curtis
Biological Systems Engineering Department
200 CHA University of Nebraska-Lincoln
Lincoln, NE 68583-0726

Phone: 402-472-3905

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